

We claim:

1. A bar code symbol reading device comprising:

a bar code symbol reading engine that reads bar code symbols affixed to objects proximate thereto and produces symbol character data representative of such bar code symbols; and

a data transmission subsystem, operably coupled to the bar code reading engine, that communicates such symbol character data to a communication interface of a host system over a communication link therebetween;

wherein said data transmission subsystem implements a plurality of different communication interfaces and wherein, during an interface configuration mode of operation, the data transmission subsystem automatically cycles through at least one of said plurality of different communication interfaces whereby, for a given communication interface, the data transmission subsystem selectively activates the given communication interface while disabling the other communication interfaces and tests the communication link between the given communication interface and the host system to ascertain if the given communication interface corresponds to the communication interface of the host system.

2. The bar code symbol reading device of claim 1, wherein said interface configuration mode of operation is carried out when the device is initially powered up.

3. The bar code symbol reading device of claim 1, wherein, in said interface configuration mode of operation, upon detecting that said given communication interface corresponds to the communication interface of the host system, the interface configuration mode of operation ends, thereby enabling subsequent data communication between the bar code symbol reading device and the host system over the given communication interface.

4. The bar code symbol reading device of claim 1, wherein said host system is selected from the group comprising: an electronic cash register system, a data collection device, and a data storage and/or processing device.
5. The bar code symbol reading device of claim 1, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wireless data link between the device and the host system.
6. The bar code symbol reading device of claim 5, wherein said wireless data link is selected from the group comprising: an infra-red link, a Bluetooth RF link, and an IEEE 802.11b RF link.
7. The bar code symbol reading device of claim 1, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired serial data link between the device and the host system.
8. The bar code symbol reading device of claim 7, wherein said wired serial data link is selected from the group comprising: a keyboard wedge link, an RS-232 link, USB link, an IEEE 1394 link, an RS-422 link, and a RS-485 link.
9. The bar code symbol reading device of claim 1, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired parallel data bus.
10. The bar code symbol reading device of claim 1, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired communication link selected from the group comprising: an OCIA link, an IBM 46XX link, a Light Pen Emulation link, and a LTPN link.

11. The bar code symbol reading device of claim 1, wherein the reading of a bar code symbol and subsequent communication of the symbol character data corresponding thereto to the host system occurs automatically without the need for human interaction to activate such operations.
12. The bar code symbol reading device of claim 1, wherein the reading of the bar code symbol occurs automatically without the need for human interaction to activate such operation, and the subsequent transfer of the symbol data corresponding thereto to the host system is manually-activated by a user interaction with a data transmission switch.
13. The bar code symbol reading device of claim 1, wherein the reading of the bar code symbol and the subsequent transfer of the symbol data corresponding thereto to the host system is manually-activated by a user interaction with a trigger mechanism.
14. The bar code symbol reading device of claim 1, wherein the data transmission subsystem maintains a status register that stores information related to the establishment of a communication link between the data transmission subsystem and the host system over a specific interface implemented by the data transmission subsystem, and wherein, in the interface configuration mode of operation, the data transmission subsystem reads said information stored in said status register to ascertain if the given communication interface corresponds to the communication interface of the host system.
15. The bar code symbol reading device of claim 1, wherein, in the interface configuration mode of operation, the data transmission subsystem tests the signal levels of a given communication interface to ascertain if the given communication interface corresponds to the communication interface of the host system.
16. The bar code symbol reading device of claim 1, wherein said bar code symbol reading engine is selected from the group comprising: a laser-based bar code reading system, a CCD-based bar code symbol reading devices that illuminate the bar code scanning field with an

LED light source, and a CCD-based bar code symbol reading devices that illuminate the bar code scanning field with a planar laser illumination beam.

17. The bar code symbol reading device of claim 1, for use as a hand-holdable scanner.
18. The bar code symbol reading device of claim 1, for use as a presentation scanner.
19. The bar code symbol reading device of claim 1, for use as an in-counter scanner.
20. The bar code symbol reading device of claim 1, for use as a wearable scanner.
21. A device, operably coupled between a bar code symbol reading engine that reads bar code symbols affixed to objects proximate thereto and produces symbol character data representative of such bar code symbols and a host system, the device comprising:
  - a data transmission subsystem that communicates said symbol character data to a communication interface of the host system over a communication link therebetween;
  - wherein said data transmission subsystem implements a plurality of different communication interfaces and wherein, during an interface configuration mode of operation, the data transmission subsystem automatically cycles through at least one of said plurality of different communication interfaces whereby, for a given communication interface, the data transmission subsystem selectively activates the given communication interface while disabling the other communication interfaces and tests the communication link between the given communication interface and the host system to ascertain if the given communication interface corresponds to the communication interface of the host system.
22. The device of claim 21, wherein said interface configuration mode of operation is carried out when the device is initially powered up.

23. The device of claim 21, wherein, in said interface configuration mode of operation, upon detecting that said given communication interface corresponds to the communication interface of the host system, the interface configuration mode of operation ends, thereby enabling subsequent data communication between the bar code symbol reading device and the host system over the given communication interface.

24. The device of claim 21, wherein said host system is selected from the group comprising: an electronic cash register system, a data collection device, and a data storage and/or processing device.

25. The bar code symbol reading device of claim 1, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wireless data link between the device and the host system.

26. The device of claim 25, wherein said wireless data link is selected from the group comprising: an infra-red link, a Bluetooth RF link, and an IEEE 802.11b RF link.

27. The device of claim 21, wherein at least one communication interface implemented by the data transmission subsystem and the communication interface of the host system provides a wired serial data link between the device and the host system.

28. The device of claim 27, wherein said wired serial data link is selected from the group comprising: a keyboard wedge link, an RS-232 link, USB link, an IEEE 1394 link, an RS-422 link, and a RS-485 link.

29. The device of claim 21, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired parallel data bus.

30. The device of claim 21, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host

system provides a wired communication link selected from the group comprising: an OCIA link, an IBM 46XX link, a Light Pen Emulation link, and a LTPN link.

31. The device of claim 21, wherein the data transmission subsystem maintains a status register that stores information related to the establishment of a communication link between the data transmission subsystem and the host system over a specific interface implemented by the data transmission subsystem, and wherein, in the interface configuration mode of operation, the data transmission subsystem reads said information stored in said status register to ascertain if the given communication interface corresponds to the communication interface of the host system.

32. The device of claim 21, wherein, in the interface configuration mode of operation, the data transmission subsystem tests the signal levels of the given communication interface to ascertain if the given communication interface corresponds to the communication interface of the host system.

33. The device of claim 21, integrated in a base unit that mechanically supports a hand-holdable bar code symbol reading device that houses said bar code symbol reading engine.

34. The device of claim 21, integrated into a communication adapter operably coupled between a bar code symbol reading device that houses said bar code symbol reading engine and said host system.

35. A method of automatically configuring data communication between a bar code symbol reading engine and a host system comprising:

providing a data transmission subsystem, operably coupled to the bar code reading engine, that implements a plurality of different communication interfaces;

during an interface configuration mode of operation, controlling the data transmission subsystem to automatically cycle through at least one of said plurality of different communication

interfaces whereby, for a given communication interface, the data transmission subsystem selectively activates the given communication interface while disabling the other communication interfaces and tests the communication link between the given communication interface and the host system to ascertain if the given communication interface corresponds to the communication interface of the host system.

36. The method of claim 35, wherein said interface configuration mode of operation is carried out when the device is initially powered up.

37. The method of claim 35, wherein, in said interface configuration mode of operation, upon detecting that said given communication interface corresponds to the communication interface of the host system, ending the interface configuration mode of operation, thereby enabling subsequent data communication between the bar code symbol reading engine and the host system over the given communication interface.

38. The method of claim 35, wherein said host system is selected from the group comprising: an electronic cash register system, a data collection device, and a data storage and/or processing device.

39. The method of claim 35, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wireless data link between the device and the host system.

40. The method of claim 39, wherein said wireless data link is selected from the group comprising: an infra-red link, a Bluetooth RF link, and an IEEE 802.11b RF link.

41. The method of claim 35, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired serial data link between the device and the host system.

42. The method of claim 41, wherein said wired serial data link is selected from the group comprising: a keyboard wedge link, an RS-232 link, USB link, an IEEE 1394 link, an RS-422 link, and a RS-485 link.
43. The method of claim 35, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired parallel data bus.
44. The method of claim 35, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired communication link selected from the group comprising: an OCIA link, an IBM 46XX link, a Light Pen Emulation link, and a LTPN link.
45. The method of claim 35, wherein the reading of a bar code symbol and subsequent communication of the symbol character data corresponding thereto to the host system occurs automatically without the need for human interaction to activate such operations.
46. The method of claim 35, wherein the reading of the bar code symbol occurs automatically without the need for human interaction to activate such operation, and the subsequent transfer of the symbol data corresponding thereto to the host system is manually-activated by a user interaction with a data transmission switch.
47. The method of claim 35, wherein the reading of the bar code symbol and the subsequent transfer of the symbol data corresponding thereto to the host system is manually-activated by a user interaction with a trigger mechanism.
48. The method of claim 35, further comprising the step of maintaining a status register that stores information related to the establishment of a communication link between the data transmission subsystem and the host system over a specific interface implemented by the data transmission subsystem; wherein, in the interface configuration mode of operation, the data

transmission subsystem reads said information stored in said status register to ascertain if the given communication interface corresponds to the communication interface of the host system.

49. The method of claim 35, further comprising the step of: in the interface configuration mode of operation, controlling the data transmission subsystem to test the signal levels of the given communication interface and the host system to ascertain if the given communication interface corresponds to the communication interface of the host system.

50. The method of claim 35, wherein said bar code symbol reading engine is selected from the group comprising: a laser-based bar code reading system, a CCD-based bar code symbol reading devices that illuminate the bar code scanning field with an LED light source, and a CCD-based bar code symbol reading devices that illuminate the bar code scanning field with a planar laser illumination beam.

51. The method of claim 35, wherein said bar code symbol reading engine is a hand-holdable scanner.

52. The method of claim 35, wherein said bar code symbol reading engine is a presentation scanner.

53. The method of claim 35, wherein said bar code symbol reading engine is an in-counter scanner.

54. The method of claim 35, wherein said bar code symbol reading engine is a wearable scanner.

55. The method of claim 35, wherein an operator selects an interface cable that uniquely supports one of the plurality of different interfaces implemented by the data transmission system and operably couples the interface cable between the bar code symbol reading device and the host system.

56. A bar code symbol reading system comprising:

a host system;

a bar code symbol reading device including a bar code symbol reading engine that reads bar code symbols affixed to objects proximate thereto and produces symbol character data representative of such bar code symbols;

a data transmission subsystem, operably coupled between the bar code reading engine and the host system, that communicates such symbol character data to a communication interface of a host system over a communication link therebetween, wherein said data transmission subsystem implements a plurality of different communication interfaces and wherein, during an interface configuration mode of operation, the data transmission subsystem automatically cycles through at least one of said plurality of different communication interfaces whereby, for a given communication interface, the data transmission subsystem selectively activates the given communication interface while disabling the other communication interfaces and tests the communication link between the given communication interface and the host system to ascertain if the given communication interface corresponds to the communication interface of the host system.

57. The bar code symbol reading system of claim 56, wherein said interface configuration mode of operation is carried out when the device is initially powered up.

58. The bar code symbol reading system of claim 56, wherein, in said interface configuration mode of operation, upon detecting that said given communication interface corresponds to the communication interface of the host system, the interface configuration mode of operation ends, thereby enabling subsequent data communication between the bar code symbol reading device and the host system over the given communication interface.

59. The bar code symbol reading system of claim 56, for use as a point of sale system, a data collection device, or a data storage and/or processing device.

60. The bar code symbol reading system of claim 56, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wireless data link between the device and the host system.
61. The bar code symbol reading system of claim 60, wherein said wireless data link is selected from the group comprising: an infra-red link, a Bluetooth RF link, and an IEEE 802.11b RF link.
62. The bar code symbol reading system of claim 56, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired serial data link between the device and the host system.
63. The bar code symbol reading system of claim 62, wherein said wired serial data link is selected from the group comprising: a keyboard wedge link, an RS-232 link, USB link, an IEEE 1394 link, an RS-422 link, and a RS-485 link.
64. The bar code symbol reading system of claim 56, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired parallel data bus.
65. The bar code symbol reading system of claim 56, wherein at least one communication interface implemented by the data transmission system of the device and the communication interface of the host system provides a wired communication link selected from the group comprising: an OCIA link, an IBM 46XX link, a Light Pen Emulation link, and a LTPN link.
66. The bar code symbol reading system of claim 56, wherein the reading of a bar code symbol and subsequent communication of the symbol character data corresponding thereto to the

host system occurs automatically without the need for human interaction to activate such operations.

67. The bar code symbol reading system of claim 56, wherein the reading of the bar code symbol occurs automatically without the need for human interaction to activate such operation, and the subsequent transfer of the symbol data corresponding thereto to the host system is manually-activated by a user interaction with a data transmission switch.

68. The bar code symbol reading device of claim 56, wherein the reading of the bar code symbol and the subsequent transfer of the symbol data corresponding thereto to the host system is manually-activated by a user interaction with a trigger mechanism.

69. The bar code symbol reading system of claim 56, wherein the data transmission subsystem maintains a status register that stores information related to the establishment of a communication link between the data transmission subsystem and the host system over a specific interface implemented by the data transmission subsystem, and wherein, in the interface configuration mode of operation, the data transmission subsystem reads said information stored in said status register to ascertain if the given communication interface corresponds to the communication interface of the host system.

70. The bar code symbol reading system of claim 56, wherein, in the interface configuration mode of operation, the data transmission subsystem tests the signal levels of the given communication interface and the host system to ascertain if the given communication interface corresponds to the communication interface of the host system.

71. The bar code symbol reading system of claim 56, wherein said bar code symbol reading engine is selected from the group comprising: a laser-based bar code reading system, a CCD-based bar code symbol reading devices that illuminate the bar code scanning field with an LED light source, and a CCD-based bar code symbol reading devices that illuminate the bar code scanning field with a planar laser illumination beam.

72. The bar code symbol reading system of claim 56, wherein said bar code symbol reading device comprises a hand-holdable scanner.

73. The bar code symbol reading system of claim 56, wherein said bar code symbol reading device comprises a presentation scanner.

74. The bar code symbol reading system of claim 56, wherein said bar code symbol reading device comprises an in-counter scanner.

75. The bar code symbol reading system of claim 56, wherein said bar code symbol reading device comprises a wearable scanner.